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## Webster's Geometry; or, the Irreducible Duchess

Benjamin Bertram (University of Southern Maine, USA)

**Abstract** This study of geometry, gender, and skepticism in John Webster's *The Duchess of Malfi* argues that the play leaves us in a hall of mirrors, a horror show of optical tricks, delusion, narcissism, and perspectivism from which there seems to be no escape, no masterpiece of God's creation upholding reality beyond sensory images. In the absence of a transcendental referent, the Duchess' willful and fearful journey «into the wilderness» – the life she leads as a result of her furtive marriage to her steward Antonio – becomes an alternative to both the public sphere mapped by divine patterns of order and – on the other extreme – the nihilistic, private court culture mapped by the 'mad' geometry of her brothers and their henchman Bosola.

A cage went in search of a bird.  
(Franz Kafka)

With its supposed origin in the mind of God, the creator of measure, number, and weight, Renaissance mathematics connected heaven and earth, giving humans access to God's master plan. Numbers, John Dee wrote in his *Mathematicall Praeface* to Euclid, are «the principle example or pattern in the mind of the creator». Mathematics could thus enable man to «ascend, and mount up (with Speculative wings), in spirit to behold the Glass of creation, the Forme of Formes [...]» (1975, \*j.). Dee's commitment to the contemplative life notwithstanding, his preface also praises the practical mathematics in navigation, surveying, warfare, and cartography. Whether the mind was 'ascending' to spiritual matters or 'descending' to applied mathematics, it was working with patterns in nature that were reflections of the divine. The belief in what Dee called «general Formes», an unchanging reality behind appearances, was also widespread in the mathematical thinking that contributed to trade debates and political theory. Metaphysical references to the circle, for example, were a commonplace in economic and political tracts of the early seventeenth century. Such references were a product of the belief in man as microcosm, a replication of a larger cosmic order designed by God.<sup>1</sup> Whereas modern philosophy and science would increasingly move towards a representational model of truth, Renaissance mathematicians, especially those inspired by Plato,

1 See, for example, de Malynes 1623.

believed in what Charles Taylor calls an «ontic logos», a rational order laid out by God that was ready to be discovered by those with the right mental equipment (1989, p. 144).

The political importance of having access to Dee's «pattern in the mind of the creator» can be seen in the opening of John Webster's *The Duchess of Malfi*, in which the French King's success is attributed to his knowledge of «his master's masterpiece, the work of heaven». In this early discussion of a commonweal, the virtuous steward Antonio says he «admires» the French court because

In seeking to reduce both state and people  
To a fixed order, their judicious King  
Begins at home: quits first his royal palace  
Of flattering sycophants, of dissolute  
And infamous persons – which he sweetly terms  
His master's masterpiece, the work of heaven  
(1.1.5-10)

These disciplinary actions are earthly manifestations of an unseen, ideal order that mirrors patterns in the mind of God. The word «dissolute» in line 8, from the Latin *dissolutus*, means 'loose', or 'disconnected' («dissolute», *OED* A3, A1), pointing to the lack of restraint in his kingdom and the need for a simplification that binds everything together as a 'single thing' («reduce», 2a), eliminating excess (financial, sexual, etc.) in the process. Antonio's verb «reduce» primarily means «to restore» (a dislocated, fractured, or ruptured part) to the proper position» (reduce, 6a) and «to bring to a certain order and arrangement» (reduce, 14a). To perform such a reduction, one needs a pattern or abstract model of society, also called a 'reduction' in the Renaissance, such as the fountain metaphor in the lines that immediately follow that reveals the proper form of a commonweal:<sup>2</sup>

Considering duly that a prince's court  
Is like a common fountain, whence should flow  
Pure silver drops in general; but if't chance  
Some cursed example poison 't near the head,  
Death, and diseases through the whole land spread.  
(1.1.11-15)

2 Such reductions were common in political treatises of the period. In *A Comparative Discourse of the Bodies Natural and Politique* (1606) Edward Forset calls his model of the body politic a reductive pattern or «well compacted epitome» (p. 2). Forset's *Comparative Discourse* is a map of the social order, a symbolic representation that works through analogy, especially the relationship of microcosm/macrocosm. And the *sine qua non* for this map is the mind of God, since the numbers that allow for proportion to exist in the first place derive from that source.

The fountain metaphor suggests that Antonio's model is geometrical: the King occupies a position in the centre, which means that when he «begins at home» the changes radiate outwards like concentric circles from the court to the rest of the kingdom. Flattery, like dissolute behavior, cries out for the proper form, a model such as a fountain, that will combat falsehood in general by setting in place a fixed order that comes from God, the *fons et origo* of Truth itself.

But such a connection between the divine and the human, taken as a given in the opening lines of *The Duchess of Malfi*, becomes increasingly problematic as the play progresses. The sceptical dismantling of the play's initial confidence in a «fixed order» is striking. Detaching vision from truth, Webster leaves us in a hall of mirrors, a horror show of optical tricks, delusion, narcissism, and perspectivism from which there seems to be no escape, no 'masterpiece' of God's creation upholding reality beyond sensory images. At times, Webster's scepticism resembles John Donne's spiritual darkness or Montaigne's embracement of flux, in which paradox lies on the path toward transcendence (Colie 1966). But his scepticism lacks such intimations of immortality. For example, his visual wit is not in the Pauline vein – there is no hope that we will move beyond seeing «through a glass darkly». Webster works with Christian *topoi* – the 'vanity of learning', the *contemptus mundi*, and the 'theatre of the world' – as well as Greek Pyrrhonism, and yet a future unveiling of truth or the tranquility of equipollence are not on the table. Thus, the French King's ascription to a divine origin, his «master's masterpiece», appears suspect in a play that treats mimesis in a highly sceptical fashion. In the larger context of what Bosola calls «a general mist of error» (4.2.181), the irredeemable falsehood that permeates the play, the French King's reduction seems more like a mystification than a restoration or simplification; indeed, throughout the rest of the play we find another kind of reduction taking centre stage – what Rick Bowers calls «cruel mathematics», that is, «the play's unremitting tendency toward a reduction unto zero» (1990, p. 370).<sup>3</sup>

There is a bright spot in this tragic darkness, though it can easily be seen as a false light, and that is the irreducibility of the eponymous character.

3 I am indebted to Bowers' reading of the play; however, my understanding of 'mathematics', and thus my reading of the play, are quite different. He sees one kind of mathematics operating throughout the play, a «deterministic» and «nullifying» calculation. But I see competing kinds of mathematics that clash. For example, Pythagorean mathematics had very different cultural and cosmological meanings than the nihilistic geometry that competes with it for prominence in the play. Webster incorporates Pythagorean cosmology: the music of the spheres and the idea of the heavenly spheres moving in harmony and the idea that humans can achieve a matching inner harmony through reason inspired by mathematics. The play also incorporates the Pythagorean/Platonic metaphysics of number as the bedrock of an unchanging 'reality' separate from the physical world. For an excellent account of connections between Pythagoras and Plato, and their impact on Renaissance literature, see Heninger (1974).

The Duchess is irreducible in a double sense: she will not be reformed, that is, made to fit into the mental maps designed by men, even that of the virtuous French King praised by her husband, nor can she be annihilated by the mad geometry that prevails at court in Italy. In the absence of a transcendental referent, the Duchess's willful and fearful journey «into the wilderness» – the life she leads as a result of her furtive marriage to Antonio – becomes an alternative to both the public sphere mapped by the French King's patterns of order and – on the other extreme – the nihilistic, private world created by her brothers and their particular brand of court culture. On one extreme, we have the idealism (both mathematical and political) of the «master's masterpiece» and, on the other, we have the nihilistic death by geometry in which her brother the Cardinal is reduced to a «point, a kind of nothing» (5.5.77 ).

## 1

Because the French King follows a divine map, a reduction derived from God, his actions are said to be grounded in truth.<sup>4</sup> In Italy, on the other hand, actions are guided by 'intelligence', a negative term related to the Greek 'metis', or cunning (on the concept of 'metic intelligence' see Detienne, Vernant 1978). Lacking the transcendental referent that makes geometry a source of cosmic truth, reason becomes merely a form of cunning. The most mathematically inclined character is Bosola, an «intelligencer» who appears to be 'poisoned' by melancholy. Although this condition makes his grasp of reality questionable, it hardly disqualifies him from excelling in mathematics. As Carla Mazzio points out, «if mathematics is an idealized cure in this period, that which in Francis Bacon's words could 'fixe' the 'wandring' mind, it is also strangely complicit with the disease of melancholy, capable itself of "wandering" and "alienating" the imagination» (43). Albrecht Durer's figure of melancholy, as Mazzio notes, holds a compass pointing inwards, an action that calls attention to her introspective state. Bosola's imaginative mathematics, as we will

4 Recent criticism of *The Duchess* tends to either ignore, deny or downplay the importance of Antonio's opening speech on the French King's «reduction». Karin Coddon, for example, refers to the «vacuity of the organic paradigm», suggesting that Antonio merely «gives lip-service to the conventional ideal of the body politic» (2000, p. 29). Frank Whigham is more on target when he points out that «this play was written, as least in significant part, to dissect the workings of the normative ideology set before us at its beginning» (1996, p. 223), but he, like Coddon, seems to be responding to the outmoded criticism that reads the speech as the moral and political norm upon which we should base our judgment of the characters. Both readings take the speech as a simplistic, generic expression of order, but the words «reduction», and «masterpiece» point to a much more subtle epistemological, ontological, and political crisis shaped by the mathematical nature of Webster's tragic form.

see, is a symptom of his «inward rust» (1.1.86) and malcontentedness. It becomes a vehicle of social protest in a society in which the common good has disintegrated, alienating people from the public sphere and the rational thought associated with it.

The poison of melancholy is one of the impurities Antonio sees in the fountain of state. It is a political and epistemological problem, since it is a symptom of social alienation and fragmentation. The fountain is above all a metaphor of circulation: the water that flows from the head outward will, we imagine, return to the center. It is an analogy for the flow of communication that can and should involve the «provident Council» of those who act and speak out of «noble duty». They «inform» the king, rather than give him 'intelligence':

And what is't makes this blessed government,  
But a most provident Council, who dare freely  
Inform him the corruption of the times?  
Though some o'th' court hold it presumption  
It is a noble duty to inform them  
What they ought to foresee.  
(1.1.16-22)

The fountain is thus in the republican spirit that informed complaints against tyranny and corruption, which threaten to destroy the commons or the 'general'. Later in the play a less conventional metaphor makes the same point: instead of polluted water spreading disease from the «head», the court, out into the «whole land», we see fire spreading from the center outward (3.3.36-38).

The fountain is the ultimate symbol of integrity (Latin *integritas* = wholeness) because, unlike body politic metaphors, there are no parts to be integrated, just a pure flow from inside out and back again. This very perfection, emblematised in the circular patterns of most fountains, is, however, the problem. It does not take much to make the whole system impure. Thus the play's beginning and end both call for «integrity» of the most pure sort while the rest of the play shows how in practice division seems to run *ad infinitum* from the collectivity itself down into the divided psyche. In the court in Italy, unlike the one in France portrayed by Antonio, the chaos of desire rages, and, as a result, the unitary space of society is lost, along with, to a great extent, the unitary self of the rationally ordered soul. Delio's sententious wisdom at the play's end matches his friend Antonio's metaphor at the start: «integrity of life is fame's best friend» (5.5.18). The flatterers, the dissolute, and the infamous mentioned by Antonio are examples of a lack of integrity and by play's end there is little hope of recuperating the centre, the fountainhead, that cannot hold.

Integrity and purity are crucial concepts in a play that has the Duchess's

supposed defiling of her family's bloodline as its central conflict. Indeed, although Webster does not produce any puns on bloodlines, he creates geometric and arithmetic paradoxes that playfully engage the concept. The mathematical sense of the word integrity is implicit in the paradox of the three siblings unintentionally proffered by the Duchess's chief admirer Antonio: «But for their sister, the right noble Duchess, | You never fixed your eye on three fair medals, | Cast in one figure, of so different temper» (1.2.105-107). This is an arithmetic problem. Are each a whole number, an integer, or are they fractions of a whole number, «one figure»? There is also the geometric/perspectival problem: one cannot simultaneously fix the eye on «one figure» and «three fair medals». Finally, there is the problem of form – the mould they were originally «cast in». How can one mould create entities with different «tempers»? Although the line is intended to differentiate the Duchess, its ambiguities call such thinking into question.<sup>5</sup> This indeterminate 'fixing' of the gaze raises questions about the moral and mathematical ability to «reduce» people to a «fixed order». If familial identities are easily blurred, we might suspect the same about other social orderings, especially the one that is so explosive in the play – social rank.

Antonio's *aporia* of the three «fair medals» is unexpected because it is wrapped in the character's cheerful optimism. We are less surprised when Bosola employs perspective as a cynical debunking of ontological and spiritual certainty.<sup>6</sup> Shortly before the Duchess's death, she says, «I am the Duchess of Malfi still», to which Bosola responds, «Glories, like glow worms, afar off shine bright, | But looked to near, have neither heat nor light» (4.2.139-140). This ocular metaphor, drawn from proverbial wisdom, Renaissance perspective, and possibly Greek Pyrrhonism, suggests that we should, as sceptics say, «suspend judgment» when it comes to knowing what objects are like «in their nature».<sup>7</sup> The Duchess's experience of being, which was not spatial, is now placed in what Ernest B. Gilman calls a «curious perspective», the «witty style» in the visual arts that departs from the experience of certainty that perspective had once inspired (1978, p. 29). Bosola's harsh response appears to be inspired by the telescope (also known as a «perspective glass»), a device that had recently allowed Galileo to distinguish between light and dark regions on the moon and thus to see craters and mountains there (on Galileo's telescopic discoveries, see

5 For more on the way visual tropes problematise consanguinity, see Paganelli (1995).

6 In his study of perspective, Samuel Edgerton points out that the early innovations in linear perspective had «unmodern spiritual assumptions». «The Latin word for mirror, *speculum*», he notes, «became almost a synonym for 'divine revelation'» (2009, p. 27). The geometry of perspective enabled God to conceive of «the universe itself in his divine mind's eye at Genesis» (Edgerton 2009, p. 29). Perspective had become much more secular in Webster's England.

7 The fifth argument in Sextus Empiricus is «the one depending on positions and intervals and places — for depending on each of these the same objects appear different» (1994, p. 31).

Peterson 2011). Given his role as the malcontent and resident misogynist at court, Bosola's challenge to the Duchess's «glory» is fitting. Nevertheless, his scepticism is representative of the play as a whole, which repeatedly incorporates spatial metaphors as a means of undermining confidence in epistemological, ontological, and spiritual truths.

Attempts to degrade or control the Duchess through spatial metaphors can, like Antonio's attempt to glorify her, backfire. Earlier in the play, when the brothers are still hoping to reduce the Duchess in the sense of leading her down the right path (rather than in the sense of diminishing her spiritually and physically), Ferdinand compares her to a crab: «Think't the best voyage | That e'er you made, like the irregular crab | Which, though't goes backward, thinks that it goes right | Because it goes its own way» (1.2.234-236). His point, of course, is that the Duchess is like the crab moving in an «irregular» direction as she «goes [her] own way». But the relativistic nature of Ferdinand's metaphor undermines the message it is intended to deliver; truth becomes a matter of perspective. Might the Duchess, like the crab, simply not share her brother's point of reference? From the crab's perspective, it is going the «right» way (whatever that might mean to a crab). Ferdinand has imposed a human notion of what is «right» onto a creature that moves according to its natural inclination, much like the birds the Duchess envisions carolling «their sweet pleasures to the spring» (3.5.20).

Ferdinand's crab metaphor prepares us for the Duchess's courageous journey «into a wilderness», that is, into an uncharted social space. At a critical moment, when the Duchess secretly discusses her future marriage plans with Cariola, her lady-in-waiting, she says, «Wish me good speed, | For I am going into a wilderness | Where I shall find nor path, nor friendly clew | To be my guide» (1.2.274-176). This language contrasts markedly with the confident 'plotting', the scheming and mapping of physical space, primarily by men (1.2.77; 3.3.6; 5.4.39). The absence of her own 'plot' in a «wilderness» may be frightening, but it is also heterotopian, a chance to mark off a space away from masculine control. The liberating potential is more evident when we juxtapose «into the wilderness» with the Duchess's later line, spoken after she has married and secretly had three children with Antonio: «The birds that live i'th'field | On the wild benefit of nature, live | Happier than we; for they may choose their mates | And carol their sweet pleasures to the spring» (3.5.17-20). The earlier uncertainty is thus later replaced by a confident assertion about the power of natural pleasure. Frank Whigham argues that the Duchess's image of singing birds alludes to Myrrha's story in Ovid's *Metamorphoses*, in which all «human law» is challenged by Nature (209). If that is the case, the Duchess's marriage appears especially transgressive. In Ovid the speech is comic in the absurd lengths to which Myrrha will go in her challenge to human institutions of any kind, a mere rationalization for her incestuous desires.



But it is also possible that Webster built the Duchess's confident assertion on the scepticism of Montaigne (on Montaigne's influence in England, see Hamlin 2010). «Beasts», Montaigne writes, «as well as wee, have choice in their loves, and are very nice in chusing of their mates» (Florio trans. [1603], pp. 271-272).

There is no doubt that the French philosopher's notion that man is a «miserable and wretched creature» who calls himself «Master Emperour of this Universe» informs Webster's scepticism in general.<sup>8</sup> And the Duchess's decentering of human beings in particular may have been inspired by Montaigne's relativistic notion of 'custom' and his lengthy praise of animal intelligence. Unconstrained female desire, and *a fortiori* the natural desire in the Duchess's «wilderness», threatens to destabilise male-centered power structures, both the idealised, rational kind Antonio attributes to the French King's reduction, and the irrational kind that characterises life at the Malfi court. But it is the brothers' henchman Bosola who delivers the most aggressive, mathematical language for reigning in the Duchess's pleasures. As noted earlier, much of the play's mathematics is steeped in the melancholy imagination, especially Bosola's, as we see when he employs his own spatial language of reduction. Accused by the Duchess's midwife of «abusing women», he says:

Bosola Who I? No, only by the way now and then, mention your frailties. The orange tree bears ripe and green fruit, and blossoms all together, and some of you give entertainment for pure love, but more, for more precious reward. The lusty spring smells well; but drooping autumn tastes well. If we have the same golden showers that rained in the time of Jupiter the Thunderer, you have the same Danaes still, to hold up their laps to receive them. Dids't thou never study the mathematics?

Old Lady What's that, sir?

Bosola Why, to know the trick how to make a many lines meet in one centre.

(2.2.13-25)

A mockery of women in general, the passage begins with «some of you», pointing specifically to prostitution at court; nevertheless, the imagery of a fecund nature and the allusion to Danae are especially pertinent to

<sup>8</sup> In *Tragedy and Scepticism in Shakespeare's England*, William Hamlin points out that «Webster does not replicate the Essays' fideistic Pyrrhonism, but he exhibits consistent engagement with doubt, showing interest in the tropes of epistemological scepticism, casting a wary eye on metaphysical suppositions, and demonstrating a distinct lack of confidence in any human ability to find moral coherence on earth through the exercise of reason or the testimony of experience» (2005, pp. 211-212).

the Duchess, whose pregnancy is foremost on Bosola's mind. The Duchess's later imprisonment in a dark cell makes her the Danae figure and her incestuous brother the Jupiter figure. The myth itself would suggest the Duchess is the victim, but Bosola, anticipating Rembrandt, puts her transgressive sexual desire in the forefront when he says that the Danaes of his own day «hold their laps up» to receive Jupiter's golden showers.<sup>9</sup>

The revenge on the Duchess increasingly looks like an attack on nature itself or at least on the pastoral simplicity of natural desire that she seeks: she is a bird whose wings will be clipped (3.2.84), ground that will be «blown up» by mines (she fears) (3.2.153-154), a forest that will be uprooted (2.5.19), and territory that will be «wasted» (2.5.20). A foreshadowing of what happens to the Duchess in prison, Bosola's metaphor reduces her to a point (the centre of the circle) as punishment for her challenge to male control over female appetite, procreation, and pleasure. The excessive layering of metaphor and imagery is characteristic of Bosola's melancholy mind. Yet while Bosola's mental gymnastics are mocked elsewhere – he is a «speculative man» who uses mathematics for silly problem solving like studying the «symmetry of Caesar's nose» (3.3.44) – in this case the link between geometry and rape is part of the unfolding plot against the Duchess.

Although the circle was a symbol of perfection and held an important place in Renaissance Platonism, such perfection might be satirised, as we see in a curious epigram by John Davies of Hereford that appropriates Euclid:

Marc in the compasse of his Lusts designes,  
is like a Circle in Geometry:  
Hee; goes from point, to point, until he joynes;  
Then puts a Period to his Lechery:  
A Period call it, or full point, or (.)  
All's one to him, so he therein doth stick.  
(Epigram 268, Davies 1617)

Bosola's bawdy reference to the Duchess's «centre» is in the same satirical vein. But Webster also makes this «centre» a substitute for God as the creator and *fons et origo* of the social order that we saw in the play's opening. Bosola's term «the mathematics» gives us good reason to think the «many lines» that «meet in one centre» is a reference to Euclid's definition of a circle, though Bosola only flirts with it: «a circle is a plaine figure, conteyned vnder one line, which is called a circumference [...] vnto

9 Although Bosola likely has Ferdinand in mind as the Jupiter figure (see the earlier allusion in 1.2.165), the immediate context is Antonio's impregnation of the Duchess.

which all lynes drawn from one poynt within the figure and falling vpon the circumference therof are equall the one to the other» (Euclid 15a). Bosola has made a significant inversion of Euclid's definition: his interest is in many lines moving **towards** the centre while Euclid defines the circle as lines of equal length moving **out** of the center. Euclidean geometry was imbued with deep theological significance in the Renaissance, and Webster wittily layers that rational and metaphysical discourse with the mad, physical desires of men at court. The readers' minds, like those of Webster's male characters, veers from the God of Renaissance mathematics towards Ovidian sexual perversion. The reversal of the lines' direction turns mathematics into a representation of sex.

Rather than controlling lust, Davies and Bosola's geometry seems to encourage it, at least among men. Their geometry provides an alternative to – if not a satire of – the common ethical trope of «keeping within compass» in which the compass itself is an imposing emblem for ethical guidance. In John Trundle's advice manual, entitled «keepe within compasse», a man is standing literally inside the legs of a compass as an ordinary, God-fearing, «virtuous» gentleman (Title Page). The instrument itself, rather than the symbolic circle we are familiar with from Leonardo's «Man in Circle and Square», renders the human figure a passive, chastened sinner (rather than the active, energetic figure of Leonardo's humanism).

The irony, of course, is that the mathematics of the compass that is supposed to discipline women winds up revealing the hypocrisy of men, whose sexual desires are quite «out of compass».<sup>10</sup> Ferdinand, who eventually goes mad from his incestuous desire, says of Julia, the Cardinal's mistress, «I would then have a mathematical instrument made for her face, that she might not laugh out of compass» (1.2.54-55). Like Trundle's compass, Ferdinand's seems too literal, as though the compass itself has a physical and talismanic power, only in Ferdinand's case the literalism is extreme and hence comic: it is as if the compass will literally serve as a vise to lock the muscles of Julia's face in place. As we will see in the next section, this male concern over the pleasure and desire of women, expressed through the language of geometry, undergoes a reversal as the play progresses. The real political crisis is created by the private desires of tyrannical men, and it is they, rather than the Duchess, who will ultimately be reduced to a «point».

10 Throughout the play, the word 'compass' is used to refer to the instrument (often called 'pair of compasses' in the period) that draws circles or measures distances (the compass was also called a 'divider'). It is also used as a noun or verb to refer to an enclosed space, the encompassing of space, and spatial limits, as in 'keeping in compass'.

The Duchess's initial nervousness about her marriage to Antonio – it seems like a journey into unexplored territory – also contrasts with her more defiant posture later, long after she has married, when she says, «Why might not I marry? | I have not gone about, in this, to create | Any new world, or custom» (3.2.108-110). She is right that a widow's remarriage is hardly a «new world» or new «custom»; nevertheless, as she herself recognises, the clandestine marriage to her steward «per verba presenti» (1.2.386) was fraught with danger.<sup>11</sup> When the Duchess and Antonio actually do make marriage vows, they avoid metaphors like «wilderness» and «new world» that signal transgression and instead adopt symbols from Pythagorean geometry that can counter the bawdy «circle» that troubles Antonio. Initially, Antonio sees himself as part of the established authority that upholds hierarchy and denies women autonomy and pleasure. In fact, when the Duchess hands him the ring, he sees a «saucy and ambitious devil | Is dancing in this circle» (1.2.323-324). The ring had long been a vaginal symbol in the theater – the *Merchant of Venice* provides a well-known example – but this instance is more explosive than others. The couple's world has been reduced to the private sphere of love and sexual appetite at the expense of their public commitments, their position in the kind of reduction or «fixed order» Antonio mentions at the start of the play. Antonio connects their union to a cosmic order by invoking the concentric circles of a Pythagorean universe: «And may our sweet affections, like the spheres, | Be still in motion – » (1.1.471-472). 'Affection' is thus controlled, the 'noise' and 'madness' of their marriage turned into something peaceful, quiet, and harmonious. Once they are about to be married, the couple seems to be 'in compass' in a new, daring way – finding balance and harmony in private life – while enjoying the silence of perpetual movement, the music of the spheres. But the Duchess disrupts Antonio's paradoxical «still in motion», his description of their eternal, spiritual love, by inserting the word «quick'ning», thus taking pleasure in the sensuality of the moment: the motion will be «Quick'ning, and make | The like soft music» (1.2.390). Despite this representation of balance and harmony in the household, the couple ultimately remains «out of compass» since they have abandoned the original purpose of attending to proper household finances that have already given way to excess. A few lines later, they are heading to bed without the public sanctification of the church. Antonio, the one who opens the play with the metaphors of social order, is himself contributing to the collapse of a symbolic order that defines the public. For a moment, at least, the lovers find a cosmic map for moral action that reconciles pleasure and virtue. But the orderly rotation of

11 On the historical context for the Duchess's marriage, see Rose 2000 and Callaghan 1989.

the spheres, which is part of the ritual of a clandestine marriage, does not carry the symbolic, ideological weight it would have had the couple been integrated into public life sanctified by church and state.

Webster's geometry generally serves darker ends than what we find in the marriage scene. The Duchess herself hints at this darkness when she attempts to redefine their social space by announcing to Antonio that everything outside «this circumference» (their embrace) is «discord» (1.2.378) (the embrace is reminiscent of Antony's «the nobleness of life is to do thus» in *Antony and Cleopatra*). Yet this private space will close in on them, the circumference diminishing in size as the play progresses. In fact, the orderly rotation of the spheres – symbols of social and political stability – is at odds with the more sceptical and gloomy sense of randomness in Webster's Democritean universe.<sup>12</sup> The times require metaphors of diffusion, like Bosola's comparison of people «struck and banded» by the stars to tennis balls (5.4.53-54) or Antonio's comparison of the «quest of greatness» to boys following after «bubbles blown in th' air» (5.4.65). Webster repeatedly returns to the idea that there is no rational order 'out there', and he challenges not only Platonism, but also a good deal of orthodox Christian thought about a providential order. When we do come across metaphors drawn from mathematics and scientific instrumentation, they fail to offer a sense of solace in a divine cosmos. In act three, for example, Antonio, contemplating the unfolding tragedy of his separation from his family, offers the suggestion that resonates with his praise for the French King's reductive order at the start of the play:

Heaven hath a hand in't, but no otherwise  
Than as some curious artist takes in sunder  
A clock or watch, when it is out of frame,  
To bring't in better order.  
(3.5.61-64)

Of course, the French King does not have to completely dismantle his Kingdom in order to set it right again. Nevertheless, the metaphor of God as an 'artist' (what we might call an artisan) resembles the metaphor of the divine masterpiece invoked in act one. If this theodicy is not laughable when it is spoken in act three, it surely is late in act five, at which point the best religion can offer is a *deus absconditus*. There may even be a grotesque joke here, since the only «hand» that does later appear is the detached one from a dead man that Ferdinand offers his sister in the darkness of her prison in the very next scene.

<sup>12</sup> Norma Kroll goes so far as to argue that «the philosophy of Democritus serves as Webster's unifying principle» (1973, p. 3).

In making scientific instruments – clocks, compasses, telescopes, plummet – serve his dramatic ends, Webster consistently reverses their potential for supplying truth; they instead are invoked to look inwards, as we find when Ferdinand returns to the compass metaphor in talking about his own psychological depth. Representing the inward turn at court, the narcissistic Ferdinand says, «He that can compass me, and know my drifts, | May say he hath put a girdle 'bout the world | And sounded all her quicksands» (3.1.84-86). The immediate sense is of his expansiveness – Falstaff's 'world' comes to mind – but Bosola immediately deflates this possibility when he tells Ferdinand, « you are your own chronicle too much, and grossly flatter yourself» (3.1.88-89). We have seen as much in act one when Ferdinand says he prefers flattery, a mirroring of himself (1.2.42-44). Thus we are likely to agree with Bosola: Ferdinand brags about his immeasurable vastness – or at least the depth of his schemes (impossible to 'sound' or measure with a plummet) but such depth is indicative of political corruption and the narcissism or privacy of a tyrant. Quicksand is one of many images of horrifying traps Ferdinand has plotted in his incestuous and murderous imagination; it is also one of many representations of the court as a suffocating place of flattery, falsehood, and deception. Voyaging (as in the common expression 'to put a girdle around the world'; «girdle» *OED* n.1, 3a) and objective measurement establish the metaphor's vehicle, yet its tenor, paradoxically, is the unfathomable depths of a mad duke who falls into the quicksand of his own subjectivity.

At a time of great excitement over new inventions and discoveries, Webster has his characters shut the new 'book of nature'. The play was written two to three years after the publication of Galileo's *Siderius Nuncius* (1611), and four to five years after Galileo had developed a new telescope. Thus in encountering a reference to Galileo modern readers might hope for a connection to his science on a deeper level than what they find in its immediate context, a cliché about unchaste women that is spiced with an *au courant* reference to a recent 'invention'. In a line that reverberates with Donne's «Go catch a falling star» the cardinal tells Julia, «We had need go borrow that fantastic glass | Invented by Galileo the Florentine, | To view another spacious world i'th' moon, | And look to find a constant woman there» (2.4.16-19). The Galileo reference contributes not only to the Cardinal's misogyny, but also to his insight into the psychology of projection: «You fear my constancy because you have approved | Those giddy and wild turnings in yourself» (2.4.11-12). Serving as a psychological tool for the Cardinal, the telescope facilitates yet another turn inwards into the human psyche rather than outwards to the stars. Mathematics and instrumentation have no relation to new knowledge. Instead, they are bound up with psychological torture and narcissism.<sup>13</sup>

13 During the performance of the madmen we are reminded that Galileo's 'invention', the

Although we have no reason to expect a dramatic reference to Galileo's telescope to include more information than Webster provides, the overall lack of knowledge about the cosmos is itself a significant theme in the play. Webster repeatedly presents 'glasses' and compasses that fail to produce genuine knowledge about the external world, other minds, or even the self. These two objects are combined in Bosola and Ferdinand's attempt to reduce the Duchess. The compass becomes a clear counterpoint to her cry for the freedom and pleasure experienced by birds: «Didst thou ever see a lark in a cage? Such is the soul in the body: this world is like her little turf of grass, and the heaven o'er our heads like her looking-glass, only gives us a miserable knowledge of the small compass of our prison» (4.2.126-129). Although the imagery that follows is drawn from the *contemptus mundi* tradition, Bosola drains that tradition of hope in the afterlife. The hitman echoes his boss's desire to reduce the Duchess to matter, indeed to mere nothing: «I would have their bodies | Burnt in a coal-pit», Ferdinand says, «with the ventage stopped, | That their cursed smoke might not ascend to heaven» (2.5.66-68). Bosola's focus on matter is just as bleak: he tells the Duchess she is «a box of worm seed», «a salvatory of green mummy», «a little curded milk», and «fantastical puff paste» (4.2.120-122).

Perhaps the true horror for the audience, however, is that it can easily feel like it too is trapped in this nihilistic space. With the pronouns «us» and «our», Bosola addresses the audience as prisoners, making the wooden O of the globe a confining space. Shut off from the cosmos by a «looking glass», the English audience is placed in the position of the narcissistic and vain people that populate the play. The traditional *theatrum mundi* topos, which posits an ultimate truth beyond the stage, is not compatible in this case with the *contemptus mundi* (as it generally was). In many of its manifestations, the *theatrum mundi* trope demonstrated that the world was imperfect, a degraded place of falsehood, a fallen place of representation much like the stage. Yet it offered hope because it included a position above from which human folly could be morally judged and laughed at. In Bosola's metaphor we find it hard to locate any position above or outside the theater from which one might distinguish reality and appearance; the «looking glass» makes us think of the human mind, not just the fleshly body, as a kind of prison.

Bosola employs spatial metaphors as a means of inflicting psychological torture, but he also turns them against his own oppressors. In yet another witty lesson in mathematics, he says of his service in the wars, «There are rewards for hawks and dogs when they have done us service, but for a

telescope he used to discover the moons around Jupiter, was derived from the «perspective glasses» he and others designed for the battlefield. One of the madmen is a «mad astrologer» who says, «Doomsday not come yet? I'll draw it nearer by a perspective, or make a glass that shall set all the world on fire upon an instant» (4.2.74-76).

soldier that hazards his limbs in a battle, nothing but a kind of geometry is his last supportation» (1.1.58-62). When asked by his befuddled companion if he really means «geometry», he replies:

Ay, to hang in a fair pair of slings, take his latter swing in the world upon an honourable pair of crutches, from hospital to hospital – fare ye well, sir. And yet do not you scorn us, for places in court are but like beds in the hospital, where this man’s head lies at that man’s foot, and so lower and lower. (1.1.64-69)

Bosola’s fanciful juxtaposition of crutches and the legs of a compass is a reminder of the literal meaning of ‘geo-metry’ as the measuring of land, pertinent examples being the surveying of a battlefield, the arrangement of troops, or the construction of a ‘plot’ for fortification (like that mentioned by Count Malatesta in 3.3.6-7). But Bosola blurs cause and effect: the geometry used in war and the geometry of a broken body arriving home from the war. The *OED* defines the phrase «hang by geometry», which appears to be what he has in mind, as to «hang in a stiff, angular fashion». The expression describes someone on crutches hanging on a «fair pair of slings». It is as if Bosola’s body bears the traces of the mathematical ordering of troop formations, and yet it is his imaginative, melancholic mind that resists the emptiness of that rational ordering with a bizarre image of protest.

What makes Bosola’s metaphor especially perspicuous is that it comments on a full blown ideological crisis, not just on a particular ethical lapse by his patrons who refuse to give him payment for his service in the wars. Bosola’s broken body represents a broken world in which his patrons are «like plum trees that grow **crooked** over standing pools» (1.1.49-50; my emphasis). The ecological imbalance he describes is an indication that «service», a regulative idea of a social order modelled on the relation of mutual obligation, is inoperative. In a play filled with metaphors drawn from the compass, Bosola’s image of himself «hanging by geometry» is jarring: instead of cosmic order symbolised by circles, we have a symbol of social disorder rooted primarily in the abuse of tyrants. The Cardinal and Ferdinand transform a human being into a tool for destruction, and yet there is no ideological order that would give Bosola’s sacrifice meaning, such as the public commitment championed by Antonio and emblematised in his fountain or the «ring» he captures in a tournament at court.

The play’s incorporation of mathematical figures and references, I have thus far tried to show, reveals a failed attempt to maintain a public-spirited socio-political order (the French King is in fact captured and put in prison, as we learn at the end of act three) as well as attempts to control or ‘reduce’ women. Bosola’s mathematical figures are employed as tools for oppressing women and as tools for protest. The latter is also found in a



cryptic reference to geometry by the Duchess that serves as resistance to the sadistic staging of her death, which she counters with an alternative space: «I know death hath ten thousand several doors | For men to take their exits; and 'tis found | They go on such strange geometrical hinges, | You may open them both ways. Any way, for heaven sake» (4.2.211-214). The mathematics convey the central point quite clearly – that death is merely a kind of *theatrum mundi* with its many «exits and entrances».<sup>14</sup> She remains calm in the face of death. What matters is the world beyond – heaven – and she appears confident she will get there. This is an expression of defiance towards the sadism of her tormentors, yet it also has an air of resignation, as if she merely wants to take the nearest exit from the theatre of the world. The passage remains enigmatic, however, since it is hard to know how the numbers add up when 10,000 exits become entrances and the hinges can open «any way». Moreover, Webster teases us with yet another allusion to the compass. The Duchess is talking explicitly about door hinges; nevertheless, she also seems to be thinking about the hinges on a compass, in this case specifically a divider, which has legs that pivot and hinges that open «both ways» or «any way». Overall, the passage is paradoxical not only in its odd blend of defiance and passivity, but also in its contradictory nature as a confident assertion of knowledge about death that is, upon careful inspection, a figurative and mathematical enigma.

Although the Duchess is strangled to death in this scene, she remains irreducible. Webster clearly wants us to juxtapose the staging of her death to that of her brother the Cardinal, whose death is dramatised in geometrical terms. After stabbing him, Bosola says, «I do glory | That thou, which stood'st like a huge pyramid | Begun upon a large and ample base, shalt end in a little point, a kind of nothing» (5.5.74-78). Unable to secure a monumental death worthy of such a public figure, the Cardinal realises Bosola is correct: «And now, I Pray, Let me | Be laid by and never thought of» (5.5.87-88). Webster may well be thinking of two different kinds of pyramids, which combine to great effect – the kind of monumental building seen in Jacobean masques, but also the pyramid of linear perspective, which would mean that the Cardinal's death is like a figure receding to the vanishing point where it is no longer visible.<sup>15</sup> This geometrical death contrasts with that of the Duchess, who rather than be «reduced» seems to retain her greatness when she utters the most famous line of the play, «I am the Duchess of Malfi still». Webster's play is itself the kind of monument to her greatness that the Cardinal mournfully concedes he will not receive.

14 I am borrowing from Jacques's famous speech in *As You Like It*, in which he says, «All the world's a stage, | And all the men and women merely players. | They have their exits and their entrances, | And one man in his time plays many parts» (2.7.139-142).

15 On masques, court politics, and space, see West 2002. On the masques and monuments, including the pyramid, see Lindley 1984.

In its immediate context, this line is a response to Bosola's attempt to annihilate her. First she reminds him «Am I not thy Duchess?». At this point she seems to be merely positioning herself in the kind of «fixed order» advocated by Antonio and the French King. But the line is much more than an attempt to defend herself by reminding the lowly and resentful Bosola of his social rank. Stated without equivocation following the cacophony of the madmen's performance, «I am the Duchess of Malfi still» is not simply an affirmation of her aristocratic identity in the face of death, like Hamlet's declaration in the graveyard, «This is I, Hamlet the Dane». It is specifically an affirmation of the **new** identity, political and personal, she established when she decided to marry Antonio. She is reaffirming the female reproductive and sexual freedom that she had earlier expressed as an ecology of desire with an image of birds and open spaces of wilderness. Her «I am» implies that her identity has remained the same when she has in fact willfully sought its transformation through her marriage to someone far beneath her royal position. As part of the Montaignean flux of the play, her identity is a work in progress.<sup>16</sup>

The «I am» also appears paradoxical in light of Webster's treatment of «integrity», wholeness, and permanence of any kind. The play ends with a sententious couplet by Delio, who, like his good friend Antonio, is relatively ethical but perhaps a little naïve. The lines seem to affirm the virtue and greatness of the play's eponymous character: «Integrity of life is fame's best friend, | Which nobly beyond death shall crown the end» (5.5.118-119). The couplet is trite and perhaps even absurdly smug in a play that is so steeped in scepticism and cynicism, yet it is hard to deny the power of the preceding image that lifts the Duchess high above her brothers, the «wretched, eminent things» that

Leave no more fame behind 'em than should one  
Fall in a frost and leave his print in snow -  
As soon as the sun shines, it ever melts  
Both form and matter.  
(5.5.112-115)

16 The Duchess's marriage to Antonio has an ideological dimension that also calls into question her confident assertion of a fixed aristocratic identity. On several occasions she explicitly champions a proto-bourgeois ethos. An example is her rhetoric of authenticity in the wooing of Antonio: «I do here put off all vain ceremony | And only do appear to you a young widow | That claims you for her husband» (1.2.366-378). Critics have also called attention to the Duchess's approval of value determined by merit and the marketplace (see especially 3.5.121-142). Her proto-bourgeois praise of the man Ferdinand denounces as «base» for practicing the commercial mathematics of «ink and counters» (3.4.70-72) suggests that her brothers may be right that she is in fact a threat to her social class. For more on the play as «the perfect fable of emergent liberalism», see Belsey 1985.

This temporal form, a mere print in the snow, contrasts with geometrical forms that constitute a permanent, underlying mathematical reality. But Webster's spatial play has made it a challenge to believe in that underlying reality and his mathematics calls into question the wholeness that «integrity» implies. Delio's final bit of wisdom circles back to Antonio's opening speech about the French King's reduction and it appears just as idealistic as the latter's celebration of a transcendent, «fixed order». Instead of a timeless «masterpiece» handed down by God, the play leaves us with the sense that any affirmation of being, permanence, and truth must be paradoxical since in the social and political order as it exists, it is inevitable that, to adopt a line from Marx that Webster would have enjoyed, «all that is solid melts into air» (Marx [1848] 1978, p. 476).

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